UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,761	01/31/2000	Hyeon Jun Kim	P-082	3903

34610 7590 06/17/2005

FLESHNER & KIM, LLP
P.O. BOX 221200
CHANTILLY, VA 20153

EXAMINER	
SHERALI, ISHRAT I	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/494,761	KIM ET AL.	
	Examiner	Art Unit	
	Sherali Ishrat	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-19 and 22-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9-11* is/are allowed.

6)☒ Claim(s) *5-8,12-19 and 22-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment/arguments received on 1/19/2005.

Based on the amendment and terminal disclaimer filed on 1/19/2005, rejection of claims 14-19 and 22-26 under 35 USC § 101 and non-statutory double patenting is withdrawn.

Applicant's arguments regarding independent claims 13 and 14, are fully considered, however they are not persuasive with respect to art rejection. See the remarks section for detail discussion.

Applicant's arguments regarding independent claim 5 is fully considered, however they are moot due to new grounds of rejection which was necessitated because of applicant's amendment to claim 5. See the remarks section for detail discussion.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 5, 7-8, 12-13 and 27 are rejected under 35 U.S.C 103 (a) as being unpatentable over Vellaikil et al. (Joint spatial-spectral indexing for image retrieval,

IEEE 9-7803-3258-X/96) in view of Ardizzoni et al. (Windsurf: region-based image retrieval using wavelets, IEEE Inpec Accession Number: 6359062).

Regarding claim 5, Vellaikal discloses an image search (Vellaikal, page 867, paragraph 2, right-column, lines 15-17, Vellaikal states "image features at different spatial resolution is indexed by following such multi-resolution", image indexing corresponds to image search);

determining color similarity between a reference image and a target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R and page 868, paragraph 3, right-column, lines 25-27, Vellaikal states "A Euclidean distance measure can be used to calculate between two image with respect to this feature" and Vellaikal shows feature is color in terms of YC_bC_r color space therefor Vellaikal shows determining color similarity between a reference image and a target image);

each of which is represented by hierarchical grid levels (Vellaikal, figure 1 (a) shows images are represented by hierarchical grid levels, Vellaikal states in paragraph 2, page 867, right-column, lines 9-12 "regions of image are split into hierarchical grid levels". Examiner notes that for comparing two images such as Q and T with respect to sub region level as shown by Vellaikal in paragraph 2, page 868, left-column, lines 10-12 each image has to be split similarly in hierarchical grid levels);

determining step includes cross-matching different grid levels of the reference and target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R (r1, r2, r3.....rn)"

cross-matching means determining similarity between two different images and Vellaikal shows determining similarity between two different images [cross-matching] and Vellaikal determining similarity of two images with respect to regions [grid levels] r1, r2, r3 ....rn i.e Vellaikal is determining similarity between two images with respect to regions r1, r2, r3.....rn i.e Vellaikal does not match only one region instead Vellaikal is matching different regions, therefore Vellaikal shows cross-matching [similarity between two images] different grid levels [regions r1, r2, ...rn] of the reference and target image);

searching image based on a content based query by a user (Vellaikal paragraph 2, page 867, right-column, lines 1-5, Vellaikal states "image retrieval using sub-portion of the image by processing queries" which corresponds to searching image based on a content based query by a user).

Vellaikal shows matching similarity of two images with respect to grid levels of the same size/level (Vellaikal, paragraph 2, page 868, left-column, lines 10-12).

Vellaikal however has not explicitly disclosed a grid on one level/region of reference image is matched to a grid of a different level in the target image.

In the same field of endeavor of image search/retrieval of multi resolution and hierarchical image structure Ardizzoni shows in figure 1 multiresolution/ hierarchical image structure and disclose on page 5, paragraph 3.1 right-column, lines 7-9, each region qi of Q is associated to its "best match" in region tj, regions size is not taken into account. Ardizzoni is matching regions by searching for best match unlike Vellaikal, who is only matching respective regions of the same size. Ardizzoni image regions are

match without the respect of regions size which corresponds to grid on one level/region of reference image is matched to a grid of a different level in the target image.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Ardizzoni of matching grid on one level/region of reference image to a grid of a different level in the target image and searching for the best match without the respect of image region/level size in the system of Vellaikal by searching image regions at a same position of different level and at different position when searching for color similarity between different levels because such a system provide the superior approach when considering difficult queries i.e queries having a low number of similar images as stated by Adrizzoni page 6, paragraph 4, left-column, lines 24-29.

Regarding claim 7, Vellaikal disclose matching grid levels of reference image with respective ones of the grid levels of the target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to regions R (r1, r2, r3.....rn)" which corresponds to matching grid levels of reference image with respective ones of the grid levels of the target image).

Regarding claim 8, Vellaikal disclose matching region representative color values between grid levels of the reference and target images (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R (r1, r2,....rn) and page 868, paragraph 3, right-column, lines 25-27, Vellaikal states "A Euclidean distance measure can be used to calculate similarity between two image with respect to this feature" and Vellaikal shows feature is color in

terms of YC_bC_r color space which corresponds to disclose matching region representative color values between grid levels of the reference and target images).

Regarding claim 12, Vellaikal disclose a cell similarity between grid levels of the reference and target image is used for searching a same position and different position between same levels in the case that search is performed by matching a color value (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R (r1, r2, r3.....rn)and page 868, paragraph 3, right-column, lines 25-27, Vellaikal states "A Euclidean distance measure can be used to calculate similarity between two image with respect to this feature" and Vellaikal shows feature is color in terms of YC_bC_r color space which corresponds to disclose matching region representative color values between grid levels of the reference and target images and Vellaikal in paragraph 2, page 867, right-column, lines 1-5, "images are search/retrieve using queries" Vellaikal has to search a same position and different position to determine the best match between regions of two images for same hierarchical level).

Regarding claim 13, Vellaikal discloses an image search (Vellaikal, page 867, paragraph 2, right-column, lines 15-17, Vellaikal states "image features at different spatial resolution is indexed by following such multi-resolution", image indexing corresponds to image search);

determining color similarity between a reference image and a target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R and page 868, paragraph 3, right-

column, lines 25-27, Vellaikal states "A Euclidean distance measure can be used to calculate between two image with respect to this feature" and Vellaikal shows feature is color in terms of YC_bC_r color space therefor Vellaikal shows determining color similarity between a reference image and a target image);

each of which is represented by hierarchical grid levels (Vellaikal, figure 1 (a) shows images are represented by hierarchical grid levels, Vellaikal states in paragraph 2, page 867, right-column, lines 9-12 "regions of image are split into hierarchical grid levels". Examiner notes that for comparing two images such as Q and T with respect to sub region level as shown by Vellaikal in paragraph 2, page 868, left-column, lines 10-12 each image has to be split similarly in hierarchical grid levels);

determining step includes cross-matching grid levels of the reference and target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R (r1, r2, r3.....rn)" cross-matching means determining similarity between two different images and Vellaikal shows determining similarity between two different images [cross-matching] and Vellaikal determining similarity of two images with respect to regions [grid levels] r1, r2, r3 ....rn i.e Vellaikal is determining similarity between two images with respect to regions r1, r2, r3.....rn i.e Vellaikal does not match only one region instead Vellaikal is matching different regions, therefore Vellaikal shows cross-matching [similarity between two images] grid levels [regions r1, r2, ...rn] of the reference and target image);

searching image based on a content based query by a user (Vellaikal paragraph 2, page 867, right-column, lines 1-5, Vellaikal states "image retrieval using sub-portion of the image by processing queries" which corresponds to searching image based on a content based query by a user).

Vellaikal shows matching similarity of two images with respect to grid levels of the same size/level (Vellaikal, paragraph 2, page 868, left-column, lines 10-12).

Vellaikal however has not explicitly disclosed a grid on one level/region of reference image is matched to a grid of a different level in the target image and also has not disclosed region matching operation between grid levels of the reference and target image is directed to searching at a same position of different level and at different position when searching color similarity between different levels.

In the same field of endeavor of image search/retrieval of multi resolution and hierarchical image structure Ardizzoni i, shows in figure 1 multiresolution/ hierarchical image structure and discloses on page 5, paragraph 3.1 lines 7-9, right-column, each region qi of Q is associated to its "best match" region tj, in T i.e regions size (level) is not taken taken into account. Ardizzoni is matching regions by searching unlike Vellaikal, who is only matching respective regions. Ardizzoni image regions are match without the respect of regions size which corresponds to a grid on one level/region of reference image is matched to a grid of a different level in the target image and matching operation between grid levels of the reference and target image is directed to searching at a same position of different level and at different position when searching color similarity between different levels.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Ardizzoni of image region matching by searching for the best match without the respect of image region size in the system of Vellaikal by searching image regions at a same position of different level and at different position when searching for color similarity between different levels because such a system provide the superior approach when considering difficult queries i.e queries having a low number of similar images as stated by Adrizzoni page 6, paragraph 4, left-column, lines 24-29.

Regarding claim 27, Vellaikal disclose determining step is performed using multilevel data structure which is expressed based on an image having two different hierarchical levels (Vellaikal, figure 1a shows multilevel data structure which is expressed based on an image having two different hierarchical levels [level 0 and level 1 and level 2], and Vellaikal in paragraph 2, page 867, right-column, lines 10-18 states "splitting of image in hierarchical structure with different resolutions which corresponds to multilevel data structure which is expressed based on an image having two different hierarchical levels).

4. Claims 14-19, 22-26 and 28 are rejected under 35 U.S.C 103 (a) as being unpatentable over Vellaikil et al. (Joint spatial-spectral indexing for image retrieval, IEEE 9-7803-3258-X/96) in view of Chua et al. (Fast signature-based color-spatial image retrieval, IEEE 0-8186-7819-4/97).

Regarding claim 14, Vellaikal discloses forming a first grid (See Vellaikal, in figure 1a shows level 1 which is first grid and paragraph 2, page 867, right-column, 10-12, Vellaikal shows hierarchical spatial structuring by quad tree based splitting level0, level 1 and level 2);

forming a second grid (See Vellaikal, in figure 1a shows level 2 which is second grid and paragraph 2, page 867, right-column, 10-12, Vellaikal shows hierarchical spatial structuring by quad tree based splitting level 0, level 1 and level 2);

the first and the second grid expresses a feature of an image at different resolution (See Vellaikal, figure 1 (a), paragraph 2, page 867, right-column , lines16-18, Vellaikal shows level 0, level 1 and level 2 shows image features at different resolutions i.e. the first and the second grid expresses a feature of an image at different resolution).

each of the cells in the first grid is assigned a first value and a second value for representing the color feature of image (See Vellaikal shows in paragraph, 3, page 868, right-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node i.e. first value is color and second is average of the color), and

first value is a regional representative color (See Vellaikal shows in paragraph, 3, page 868, right-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node i.e. first value is color and second is average of the color).

Vellaikal however have not disclosed the second value is reliability score indicative of an accuracy of the region representative color.

In the same field of endeavor chua disclose, reliability score indicative of an accuracy of the region representative color (Chua on page 363, paragraph 3.1, right-column lines 7-12, states "For a given color cell, each cell is examined to determine the percentage of the total number of pixels in the cell having that color". If this percentage is greater than a predefined threshold value then the cell is said to be represented by this color". This corresponds to reliability score indicative of an accuracy of the region representative color).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Chua of using reliability score indicative of an accuracy of the region representative color in the system of Vellaikal because such a system determine color similarity of two images with high accuracy by comparing color accuracy/ reliability of image regions.

Regarding claim 15, Vellaikal discloses a first grid includes first number of cells and second grid includes second number of cells (See Vellaikal, figure 1 a, Vellaikal shows level 1 [first grid] includes four cells and level 2 [second grid] includes sixteen cells).

Regarding claim 16, Vellaikal discloses second number of cells is greater than first number of cells (See Vellaikal that level 2 [second grid] includes sixteen cells which is greater than four cell in level 1 [first grid]).

Regarding claim 17 , Vellaikal discloses first and second grid are hierarchically related (See Vellaikal, figure 1a and paragraph 2, lines 10-12 shows level 1 [first grid] and level 2 [second grid] are related hierarchically).

Regarding claim 18, Vellaikal discloses second grid includes plurality of cell each group representing feature of image at different areas with a respective one cells in the first grid (See Vellaikal, figure 1a, second paragraph, page 867, right-column, lines 10-15, Vellaikal shows hierarchical spatial procedure involving quad tree based image splitting, array is equally subdivided into four quadrant i.e. Vellaikal shows in figure 1 a second grid [level 2] includes plurality of cell each group representing feature of image at different areas with a respective one cells in the first grid [level 1]).

Regarding claim 19, Vellaikal disclose feature is a color spatial feature (Vellaikal in figure 1 b and paragraph 2, page 868, left-column, lines 14-16, feature is spatial color feature).

Regarding claim 22, Vellaikal discloses each cell in the second grid is assigned multiple values for representing the spatial color feature (See Vellaikal shows in paragraph, 3, page 868, right-column, lines 20-28, for each node [cell in the grid] DCT coefficients are obtained and DC coefficient is calculated which represent average color at given node [cell] first value is color and second value is average of the color i.e. *each cell in the second grid/first grid is assigned multiple values for representing the spatial color feature

Regarding claim 23, Vellaikal discloses number of cells in the first grid and second grid are proportional to the size of image (See Vellaikal , paragraph 2, page

867, right-column, lines 15-17, figure 1 a, first and second grids [level 1 and level 2] level 2 shows image features in higher resolution than level 1 i.e. number of cell is proportional to the size [resolution] of the image).

Regarding claim 24, Vellaikal discloses image has square shape and is uniformly divided into the cells of the grid (Vellaikal in figures 1a and b shows image has square shape and is uniformly divided into the cells of the grid).

Regarding claim 25, Vellaikal discloses image has non square shape (See Vellaikal, figure 1b, [middle of the figure] image has none square shape), and

first side of the image is divided uniformly and second side of the image is divided based on a dividing unit of first side (Vellaikal shows in figure 1 a level 1 first side is divided into two cells and similarly other side is divided into o two cells i.e. four equal cells), division forming the cells in the first grid (See Vellaikal figure 1 a division of four equal cells is level 1[first grid]).

Regarding claim 26, Vellaikal each of the cell in first grid has first size and second grid has second size (See Vellaikal in figure 1 a shows level 1 cells size is bigger than the size of cells level 2).

Regarding claim 28, Chua discloses setting the reliability score of each cell based on a value which determined in accordance with mixed rate information (Chua on page 363, paragraph 3.1, right-column lines 7-12, states "For a given color cell, each cell is examined to determine the percentage of the total number of pixels in the cell having that color". If this percentage is greater than a predefined threshold value then the cell is said to be represented by this color". It is obvious in the system of Chua that each cell

has mix color and by determining information (percentage) of particular color, Chua is also obtaining information (percentage) of the rest of colors which is difference between 100 percent and the percentage of a particular color) and

color similarity (Chua on page 363, paragraph 3.1, right-column lines 7-12, states "For a given color cell, each cell is examined to determine the percentage of the total number of pixels in the cell having that color". By determining number of pixels having a particular color, Chua is determining number of pixels having similar color).

5. Claim 6 is rejected under 35 U.S.C 103 (a) as being unpatentable over Vellaikil et al. (Joint spatial-spectral indexing for image retrieval, IEEE 9-7803-3258-X/96) in view of Ardizzoni et al. (Windsurf: region-based image retrieval using wavelets, IEEE Inpec Accession Number: 6359062) as applied to claim 5 and 8 and further in view of Chua et al. (Fast signature-based color-spatial image retrieval, IEEE 0-8186-7819-4/97).

Regarding claim 6, Vellaikal shows determining step includes determining color similarity between a reference and a target image (Vellaikal, paragraph 2, page 868, left-column, lines 10-12, Vellaikal states "The similarity of two images with respect to region R and page 868, paragraph 3, right-column, lines 25-27, Vellaikal states "A Euclidean distance measure can be used to calculate between two image with respect to this feature" and Vellaikal shows feature is color in terms of YC_bC_r color space therefor Vellaikal shows determining color similarity between a reference image and a target image).

Vellaikal and Ardizzoni, however have not disclosed determining similarity of reliability information indicative of accuracies of the region representative color values between the grid levels of the reference and the target image.

In the same field of endeavor Chua discloses determining similarity of reliability information indicative of accuracies of the region representative color values between the grid levels of the reference and the target image (Chua on page 363, paragraph 3.1, right-column lines 7-12, states "For a given color cell, each cell is examined to determine the percentage of the total number of pixels in the cell having that color". If this percentage is greater than a predefined threshold value then the cell is said to be represented by this color". This corresponds to reliability score indicative of an accuracy of the region representative color, Chua on page 364, paragraph 3.1, left-column, lines 23-27, "each cell can be represented by a bit. If the cell satisfies the threshold value, the bit is set, otherwise, it is cleared. Hence for each color we obtain bitstream, call the color signature, that capture the spatial distribution of that color". Examiner notes that Chua establishes color-spatial signature of color region in the image based on the reliability score [above or below threshold], and Chua on page 364, paragraph 3.2, right-column, lines 2-8, Chua is comparing two image for retrieval process by comparing the color-signature of two image, which corresponds to determining similarity of reliability information indicative of accuracies of the region representative color values between the grid levels of the reference and the target image).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Chua to determine similarity of reliability information indicative of accuracies of the region representative color values between the grid levels of the reference and the target image in the system of Vellaikal because such a system determine color similarity of two images with high accuracy by comparing color accuracy/ reliability of image regions.

Allowable Subject Matter

6. Claims 9-11 are allowable over prior art of record.

Remarks

7. In the amendment/arguments filed on 1/19/2005, Applicant argued the following:

Regarding claim 5 and 13 Vellaikal and Ardizzoni references do not disclose grid on one level of the reference image is matched to a grid of a different level in the target image.

Vellaikal shows matching similarity of two images with respect to grid levels of the same size/level (Vellaikal, paragraph 2, page 868, left-column, lines 10-12).

Vellaikal however has not explicitly disclosed a grid on one levelof reference image is matched to a grid of a different level in the target image.

In the same field of endeavor of image search/retrieval of multi resolution and hierarchical image structure Ardizzoni shows in figure 1 multiresolution/ hierarchical image structure and disclose on page 5, paragraph 3.1 right-column, lines 7-9, each

region qi of Q is associated to its "best match" in region tj, in T, regions size is not taken into account. Ardizzoni is matching regions by searching for best match unlike Vellaikal, who is only matching respective regions of the same size. Ardizzoni image regions are match without the respect of regions/level size which corresponds to grid on one level/region of reference image is matched to a grid of a different level in the target image.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Ardizzoni of matching grid on one level/region of reference image to a grid of a different level in the target image and searching for the best match without the respect of image region/level size in the system of Vellaikal by searching image regions at a same position of different level and at different position when searching for color similarity between different levels because such a system provide the superior approach when considering difficult queries i.e queries having a low number of similar images as stated by Adrizzoni page 6, paragraph 4, left-column, lines 24-29.

Regarding claim 14, Vellaikal and Chua do not teach first grid is assigned a first value and second value, first value is a regional representative color and the second value is reliability score indicative of accuracy of the regional representative color.

Vellaikal discloses each of the cells in the first grid is assigned a first value and a second value for representing the color feature of image (See Vellaikal shows in paragraph, 3, page 868, right-column, lines 20-28, for each node [cell in the grid] DCT

coefficients are obtained and DC coefficient is calculated which represent average color at given node i.e. first value is color and second is average of the color),

Vellaikal however have not disclosed the second value is reliability score indicative of an accuracy of the region representative color.

In the same field of endeavor of color similarity measure between two images chua disclose, reliability score indicative of an accuracy of the region representative color (Chua on page 363, paragraph 3.1, right-column lines 7-12, states "For a given color cell, each cell is examined to determine the percentage of the total number of pixels in the cell having that color". If this percentage is greater than a predefined threshold value then the cell is said to be represented by this color". This corresponds to reliability score indicative of an accuracy of the region representative color).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the teaching of Chua of using reliability score indicative of an accuracy of the region representative color in the system of Vellaikal because such a system determine color similarity of two images with high accuracy by comparing color accuracy/ reliability of image regions.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherali Ishrat whose telephone number is 571-272-7398. The examiner can normally be reached on 8:00 AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ishrat Sherali

Patent Examiner

Group Art Unit 2621

June 9, 2005.